Amendments to the Specification:

Please replace the paragraph beginning at paragraph 2, page 3 with the following amended paragraph:

To achieve the object of the present invention, a piezoelectric biochip for the detection of the BSE pathogen has been constructed from a piezoelectric chip, a common electrode which is fixed on the lower side surface of the piezoelectric chip, a microelectrode array which is fixed on the upper side surface of the piezoelectric chip, and an antibody array comprising a plurality of antibodies against BSE PrPs, which antibodies are immobilized on the electrodes of the microelectrode array ~~in a format corresponding uniquely to the electrodes of the microelectrode array~~in a predetermined pattern.

The piezoelectric biochip for the detection of the BSE pathogen according to the present invention (see Figures 1 and 2) comprises a piezoelectric chip comprising a piezoelectric material (1), a common electrode (2), a microelectrode array (3) and a BSE PrP antibody array on the microelectrodes (4). Said piezoelectric chip has a smooth surface and has a common electrode (2) and a microelectrode array consisting of at least two discrete microelectrodes (3) on lower and upper side surfaces of the piezoelectric chip, respectively. The PrP antibodies are antibodies corresponding to any of a variety of PrPs and are immobilized on the electrodes of the microelectrode array ~~in a format corresponding uniquely to the electrodes of the microelectrode array~~ in a predetermined pattern, constituting the PrP antibody array (4) consisting of at least one PrP antibody.

Please replace the paragraph beginning at paragraph 1, page 5 with the following amended paragraph:

The BSE PrP antibody array used in the present invention is combined with a

piezoelectric resonant array. Particularly, the antibody molecules of the PrP antibody array are immobilized on the microelectrodes of the piezoelectric resonance array ~~in a format corresponding uniquely to the microelectrodes of the piezoelectric resonance array~~ in a predetermined pattern, forming detection sites for individual BSE PrPs. The detection sites for individual PrPs constitute the array for detection of PrPs, the whole of which constitutes the piezoelectric biochip for the detection of the BSE pathogen.

Please replace the paragraph beginning at paragraph 1, of page 7 with the following amended paragraph:

Brief Description of the Drawings

Figure 1 is a cut away view of Figure 2.

Figure 2 is a top plan view Figure 1.

Figure 3 shows the N-terminal amino acid sequences of four PrPs (I-IV) (SEQ ID NOs:1-4, respectively) useful in a PrP antibody array according to the present invention.

Figure 4 is a schematic diagram of a self-assembled antibody according the present invention and its binding with PrP.

In Figures 1 and 2, 1 represents a piezoelectric chip, 2 represents a common electrode, 3 represents a microelectrode array, 4 represents a BSE PrP antibody array, 5 represents an electric wire, and 6 represents a chip support.

Please replace the paragraph beginning at paragraph 1, page 11 with the following amended paragraph:

Examples

Example 1

One piezoelectric biochip for the detection of the BSE pathogen according to the present invention

In this example, the piezoelectric chip 1 was a chip of quartz crystal which was 100 micrometers (μm) thick, both the microelectrode film 3 and its pin 5 were gold film 200 nanometers (nm) thick, and the piezoelectric chip 1 and the microelectrode 3 were in a shape of quadrangle. The antibody array 4 consisted of four PrP antibodies against normal or abnormal PrPs with N-terminal amino acid sequence identified in I(SEQ ID NO:1) or II(SEQ ID NO:2), respectively. The support 6 was made of ceramic. The antibodies 4 were immobilized on the microelectrodes 3 by a cross-linking process with a fixing agent, and the thickness of the PrP antibodies was 100-150 nm. The fixing agent consisted of 4% paraformaldehyde, 25% glutaraldehyde, 10% phosphate buffer solution of pH 6-8, and a balance of water. The immobilization temperature was 4°C and the immobilization period of time was 8 hours. This example of the piezoelectric biochip according to the present invention was useful in detecting qualitatively and analyzing quantitatively all of the BSE pathogens with abnormal PrPs comprising N-terminal amino acid sequences identified in I(SEQ ID NO:1) and II(SEQ ID NO:2), respectively, at the same time.

Please replace the paragraph beginning at paragraph 1, page 12 with the following amended paragraph:

Example 2

One piezoelectric biochip for the detection of the BSE pathogen according to the present invention

In this example, the piezoelectric chip 1 was a chip of quartz crystal which was 80

micrometers (μm) thick, both the microelectrode film 3 and its pin 5 were silver film 150 nanometers (nm) thick, and the piezoelectric chip 1 and the microelectrode 3 were in a shape of round. The antibody array 4 consisted of six PrP antibodies against normal or abnormal PrPs with N-terminal amino acid sequence identified in I(SEQ ID NO:1), II(SEQ ID NO:2), or III(SEQ ID NO:3), respectively. The support 6 was made of plastic. The antibodies 4 were immobilized on the microelectrodes 3 by a cross-linking process with a fixing agent, and the thickness of the PrP antibodies was 100-150 nm. The fixing agent consisted of 2% ethyl-dimethylaminopropylcarboimide hydrochloride, 25% glutaraldehyde, 10% phosphate buffer solution of pH 6-8, and a balance of water. The immobilization temperature was 15°C and the immobilization period of time was 4 hours. This example of the piezoelectric biochip according to the present invention was useful in detecting qualitatively and analyzing quantitatively all of the BSE pathogens with abnormal PrPs comprising N-terminal amino acid sequences identified in I(SEQ ID NO:1), II(SEQ ID NO:2) and III(SEQ ID NO:3), respectively, at the same time.

Please replace the paragraph beginning at paragraph 2, page 12 with the following amended paragraph:

Example 3

One piezoelectric biochip for the detection of the BSE pathogen according to the present invention

In this example, the piezoelectric chip 1 was a piezoelectric poly(vinylidene fluoride) chip which was 200 micrometers (μm) thick, both the microelectrode film 3 and its pin 5 were gold film 100 nanometers (nm) thick, and the piezoelectric chip 1 and the microelectrode 3 were in a shape of quadrangle. The antibody array 4 consisted of eight

PrP antibodies against normal or abnormal PrPs with N-terminal amino acid sequence identified in I(SEQ ID NO:1), II(SEQ ID NO:2), III(SEQ ID NO:3), or IV(SEQ ID NO:4), respectively. The support 6 was made of plastic. The antibodies 4 were immobilized on the microelectrodes 3 by self-assembly of biotin and avidin, and the thickness of the PrP antibodies was 100-500 nm. The immobilization temperature was 25°C and the immobilization period of time was 2 hours. This example of the piezoelectric biochip according to the present invention was useful in detecting qualitatively and analyzing quantitatively all of the BSE pathogens with abnormal PrPs comprising N-terminal amino acid sequences identified in I(SEQ ID NO:1), II(SEQ ID NO:2), III(SEQ ID NO:3), and IV(SEQ ID NO:4), respectively, at the same time.

Please insert the sequence listing filed herewith after the Abstract.